

CLAIMS

The following is claimed:

1 1. A method for providing rapid rerouting of real-time multi-media data flows,
2 comprising the steps of:
3 receiving a data packet at a first endpoint, from a second endpoint;
4 determining a source address and a destination address from said data packet; and
5 determining a forwarding destination if more than one destination address of said data
6 packet is provided.

1 2. The method of claim 1, further comprising the steps of removing a level two
2 header from said data packet prior to said step of determining a source address and a destination
3 address, and adding said level two header to said data packet prior to transmission away from
4 said first endpoint.

1 3. The method of claim 2, wherein said level two header is a link protocol header.

1 4. The method of claim 2, wherein said level two header is a layer two header.

1 5. The method of claim 1, wherein said data packet is a real-time protocol (RTP)
2 data flow packet.

1 6. The method of claim 1, further comprising the step of performing flow processing
2 wherein said step of performing flow processing further comprises the steps of:

3 determining a source address and a destination address for said data packet;

4 determining if a flow transform record (FTR) is located within said first endpoint;

5 if said FTR exists within said first endpoint, retrieving said FTR and determining whether
6 to translate said source address, said destination address, or both said source address and said
7 destination address in accordance with said retrieved FTR;

8 determining if said data packet is a real-time control protocol (RTCP) data packet; and

9 if said data packet is an RTCP data packet, processing said RTCP data packet to
10 determine flow quality statistics.

1 7. The method of claim 1, further comprising the step of removing a multi-protocol
2 label switching (MPLS) tag from said data packet.

1 8. The method of claim 7, wherein said step of removing said MPLS tag from said
2 data packet is performed if specified by a flow transform record located within said first
3 endpoint.

1 9. The method of claim 1, wherein said step of determining a forwarding destination
2 is performed by determining and analyzing flow quality statistics for each of said destination
3 addresses.

1 10. The method of claim 1, further comprising the step of performing traffic
2 measurement on said received data packet.
3

4 11. The method of claim 1, further comprising the step of applying quality of service
5 characteristics to said data packet, wherein said application allows for guaranteed bandwidth for
6 transmission of said data packet within a data flow.

1 12. The method of claim 11, wherein said step of applying quality of service
2 characteristics provides for policing and shaping of said data flow.

1 13. The method of claim 1, further comprising the step of fragmenting said data
2 packet.

1 14. The method of claim 13, wherein said fragmenting step is performed if said data
2 packet is at a maximum transit unit (MTU) size when it is received by said first endpoint.

1 15. A system for providing rapid rerouting of real-time multi-media data flows,
2 comprising:
3 a first endpoint, connected to a second endpoint, wherein said first endpoint comprises;
4 a transceiver;
5 software stored within said first endpoint defining functions to be performed by
6 said first endpoint; and
7 a processor configured by said software to perform the steps of,
8 determining a source address and a destination address from said data
9 packet; and
10 determining a forwarding destination if more than one destination address
11 of said data packet is provided.

1 16. The system of claim 15, wherein said processor is further configured to perform
2 the steps of removing a level two header from said data packet prior to said step of determining a
3 source address and destination address, and adding said level two header to said data packet prior
4 to transmission away from said first endpoint.

1 17. The system of claim 16, wherein said level two header is a link protocol header.

1 18. The system if claim 16, wherein said level two header is a layer two header.

1 19. The system of claim 15, wherein said data packet is a real-time protocol (RTP)
2 data flow packet.

1 20. The system of claim 14, wherein said processor is further configured to perform
2 the step of performing flow processing, wherein said step of performing flow processing further
3 comprises the steps of:

4 determining a source address and a destination address for said data packet;

5 determining if a flow transform record (FTR) is located within said first endpoint;

6 if said FTR exists within said first endpoint, retrieving said FTR and determining whether
7 to translate said source address, said destination address, or both said source address and said
8 destination address in accordance with said retrieved FTR;

9 determining if said data packet is a real-time control protocol (RTCP) data packet; and

10 if said data packet is an RTCP data packet, processing said RTCP data packet to
11 determine one or more flow quality statistics.

1 21. The system of claim 15, wherein said processor is further configured to perform
2 the step of removing a multi-protocol label switching (MPLS) tag from said data.

1 22. The system of claim 21, wherein said processor performs said step of removing
2 said MPLS tag from said data packet if specified by a flow transform record located within said
3 first endpoint.

1 23. The system of claim 15, wherein said step of determining a forwarding
2 destination is performed by determining and analyzing flow quality statistics for each of said
3 destination addresses.

1 24. The system of claim 15, wherein said processor is further configured to perform
2 the step of performing traffic measurement on said received data packet.

1 25. The system of claim 14, wherein said processor is further configured to perform
2 the step of applying quality of service characteristics to said data packet, wherein said
3 application allows for guaranteed bandwidth for transmission of said data packet within a data
4 flow.

1 26. The system of claim 25, wherein said step of applying quality of service
2 characteristics provides for policing and shaping of said data flow.

1 27. The system of claim 15, wherein said processor is further configured to perform
2 the step of fragmenting said data packet.

1 28. The system of claim 27, wherein said fragmenting step is performed if said data
2 packet is at a maximum transit unit (MTU) size when it is received by said first endpoint.

1 29. A system for providing rapid rerouting of real-time multi-media data flows,
2 comprising:
3 means for receiving a data packet at a first endpoint from a second endpoint;
4 means for determining a source address and destination address from said data packet;
5 and
6 means for determining a forwarding destination if more than one destination address of
7 said data packet is provided.

1 30. The system of claim 29, further comprising means for removing a level two
2 header from said data packet prior to determining said source address and said destination
3 address, and means for adding said level two header to said data packet prior to transmission
4 away from said first endpoint.

1 31. The system of claim 30, wherein said level two header is a link protocol header.

1 32. The system of claim 30, wherein said level two header is a layer two header.

1 33. The system of claim 29, wherein said data packet is a real-time protocol (RTP)
2 data flow packet.

1 34. The system of claim 29, further comprising a means for performing flow
2 processing, wherein said means for performing flow processing further comprises:
3 means for determining a source address and a destination address for said data packet;
4 means for determining if a flow transform record (FTR) is located within said first
5 endpoint;
6 means for retrieving said FTR and determining whether to translate said source address,
7 said destination address, or both said source address and said destination address in accordance
8 with said retrieved FTR, if said FTR exists within said first endpoint;
9 means for determining if said data packet is a real-time control protocol (RTCP) data
10 packet; and
11 means for processing said RTCP data packet to determine flow quality statistics, if said
12 data packet is an RTCP data packet.

1 35. The system of claim 29, further comprising means for removing a multi-protocol
2 label switching (MPLS) tag from said data.

1 36. The system of claim 35, wherein said means for removing said MPLS tag from
2 said data packet removes said MPLS tag if specified by a flow transform record located within
3 said first endpoint.

1 37. The system of claim 29, wherein said means for determining a forwarding
2 destination performs said determination by determining and analyzing flow quality statistics for
3 each of said destination addresses.

1 38. The system of claim 29, further comprising means for performing traffic
2 measurement on said received data packet.

1 39. The system of claim 29, further comprising means for applying quality of service
2 characteristics to said data packet, wherein said application allows for guaranteed bandwidth for
3 transmission of said data packet within a data flow.

1 40. The system of claim 39, wherein said means for applying quality of service
2 characteristics provides for policing and shaping of said data flow.

1 41. The system of claim 29, further comprising means for fragmenting said data
2 packet.

1 42. The system of claim 41, wherein said means for fragmenting said data packet
2 fragments if said data packet is at a maximum transit unit (MTU) size when it is received by said
3 first endpoint.

1 43. A system for providing rapid routing of real-time multi-media data flow
2 comprising:
3 a first endpoint, connected to a second endpoint, wherein said first endpoint
4 comprises:
5 a transceiver; and
6 a controller programmed to perform the steps of,
7 determining a source address and a destination address from said
8 data packet; and
9 determining a forwarding destination if more than one destination
10 address of said data packet is provided.

1 44. The system of claim 43, wherein said controller is located within an
2 application specific integrated circuit.